

## **REMARKS**

Claims 29-33, 36, 38, 39, 43-45, 47, 49-51, and 56 are pending in the application.

Claims 29-33, 36, 38, 39, 43-45, 47, 49-51, and 56 are currently amended. Applicants respectfully submit that the claims are currently amended to recite *inter alia*, "computer-implemented method", "computer system", and "computer program storage device", in order to describe the present invention as statutory subject matter and distinguish the present invention from non-statutory "wholly mental processes". Applicants further respectfully submit that no new matter is added to the currently amended claims.

Claims 29-33 and 56 stand rejected under 35 U.S.C. §101.

Claim 43 stands rejected under 35 U.S.C. §112, second paragraph.

Claims 29-33, 36, 38-39, 43-45, 47, 49-51, and 56 stand rejected under 35 U.S.C. §103(a) as unpatentable over U.S. Patent Application Publication No. 2004/0015386 to Abe et al., hereinafter, Abe, in view of U.S. Patent Application Publication 2004/0117239 to Mittal et al., hereinafter, Mittal.

Applicants respectfully traverse the rejections based on the following discussion.

### **I. The 35 U.S.C. §101 Rejection**

[0001] Claims 29-33 and 56 stand rejected under 35 U.S.C. §101 because the Office Action asserts that the claimed invention is directed to non-statutory subject matter, i.e., to a process that does not include another statutory class of invention (manufacture, machine, composition of matter). (Final Action, page 3, section 12).

[0002] Applicants respectfully submit that currently amended, independent claims 29 and 56 now recite, "A computer-implemented method, implemented on a computer, for automatically providing a marketing strategy to address at least one specified merchant objective, the objective corresponding to a specified time period and a specified budget, the strategy being implemented across at least one marketing channel, the strategy including at least one initiative, ...".

Therefore, Applicants respectfully argue that currently amended, independent claims 29 and 56

are directed to a method that includes another statutory class, i.e., a computer, which is a machine.

[0003] For at least the reasons outlined above, Applicants respectfully submit that currently amended, independent claims 29 and 56, and dependent claims 30-33 fulfill the statutory requirements of 35 U.S.C. §101. Withdrawal of the rejection of claims 29-33 and 56 under 35 U.S.C. §101 is respectfully solicited.

## **II. The 35 U.S.C. §112, Second Paragraph, Rejection**

[0004] Claim 43 stand rejected under 35 U.S.C. §112, second paragraph, because the Final Action states, "It is unclear what relationship exists between the memory and the microprocessor ... . Furthermore, it is unclear how the microprocessor performs the claimed limitations without receiving the information from the memory device via a communication device and/or other interface." (Final Action, page 4, section 15).

[0005] Applicants respectfully submit that currently amended, independent claim 43 now recites in relevant part, "a memory for storing said at least one specified merchant objective, which is inputted by a merchant via an input device and a communication bus", which is supported by the description at page 32, lines 6-21, and by Fig. 6 of the Specification.

[0006] For at least the reasons outlined above, Applicants respectfully submit that currently amended, independent claim 43 particularly points out and distinctly claims the subject matter which Applicants regard as the invention and thus, satisfies the statutory requirements of 35 U.S.C. §112, second paragraph. Withdrawal of the rejection of claim 43 under 35 U.S.C. §112, second paragraph, is respectfully solicited.

## **III. The 35 U.S.C. 103(a) Rejection over Abe and Mittal**

### **A. The Abe Disclosure**

[0007] It is a fact that Abe discloses, "The present invention includes an inventive method for sequential decision making (e.g., sequential cost-sensitive decision making) for customer relationship management. The inventive method includes providing customer data (e.g., consumer data, client data, donor data, etc.) comprising stimulus-response history data, and

automatically generating actionable rules based on the customer data. Further, automatically generating actionable rules may include estimating a value function using reinforcement learning (e.g., reinforcement learning and dynamic programming). For example, estimating a value function may include value iteration." (Paragraph [0014]).

[0008] It is a fact that Abe discloses, "... the present invention may utilize the popular Markov Decision Process model with function approximation. In a Markov Decision Process (MDP), the environment is assumed to be in some state at any given point in time. In the case of targeted marketing, such states would be represented as feature vectors comprising categorical and numerical data fields that characterize what is known about each customer at the time a decision is made. [0067] When the learner takes an action, it receives a finite reward and the environment makes a probabilistic transition to another state. The goal of a learner is to learn to act so as to maximize the cumulative reward it receives (usually with future rewards discounted) as the learner takes actions and traverses through the state space. In the example of targeted marketing, a customer, with all her past history of purchases and promotions, is in a certain state at any given point in time. When a retailer takes an action, the customer then makes a probabilistic transition to another state, possibly generating a reward. ... The reward at each state transition is the net profit to the retailer. ... Application of reinforcement learning to this problem amounts to maximizing the net present value of profits and losses over the life cycle of a customer." (Paragraphs [0066]-[0067]).

[0009] It is a fact that Abe discloses, "At any point in time, the environment is assumed to be in one of a set of possible states. At each time tick (the present invention may assume a discrete time clock), the environment is in some state  $s$ , the learner takes one of several possible actions  $a$ , receives a finite reward (i.e., a profit or loss)  $r$ , and the environment makes a transition to another state  $s'$ . Here, the reward  $r$  and the transition state  $s'$  are both obtained with probability distributions that depend on the state  $s$  and action  $a$ ." (Paragraph [0074]).

[0010] It is a fact that Abe discloses, "The inventors also conducted experiments to examine the effect of using the various sampling methods proposed hereinabove with respect to the quality of the output models and the required computational resources. FIG. 12 plots the total life-time profits attained using different sampling methods as a function of the number of value

iterations that were performed. The sampling methods employed were random sampling, Q-sampling, TD(.lambda.)-sampling with 2-step lookahead, and TD(.lambda.)-sampling with 3-step lookahead." (Paragraph [0150]).

[0011] It is a fact that Abe discloses, "... the present invention includes a method for optimized sequential targeted marketing. The method may include preparing data, estimating a value function, and transforming rules. Data preparing may include using customer data such as demographic features, transaction history data such as purchase records, web, wireless, kiosk access data, call center records, which may be used to generate a sequence of event data, where each event datum consists of demographic features of a customer, if any, and a number of features of the same customer which collectively reflect the state of that customer at a certain point in time. Such features may be derived from the customer's transaction history data (e.g., the number of purchases made to date, number of purchases made in recent months, the amount of purchases made, the amount of purchases made recently, the frequency of web access, frequency of web access made recently, possibly categorized by the types of web pages, etc.). Such data may also include the marketing action which may be taken at or around that time by the seller (e.g., retailer), the response may be taken by that customer at or around that time, and the amount of profit or cost associated with that action, if available." (Paragraph [0152]).

## **B. The Mittal Disclosure**

[0012] It is a fact that Mittal discloses, "The merchant desires to complete the experiment within the specified budget, within the defined time period and obtain the required information from one or more set of target users/customers." (Paragraph [0015]).

## **C. Arguments**

[0013] The present invention is directed to "providing a marketing strategy to address at least one specified merchant objective, the objective corresponding to a specified time period and a specified budget", as recited in all of the independent claims, i.e., claims 29, 43, 49, and 56. More specifically, the present invention claims the feature of: "inputting to a computer, by a merchant, said at least one specified merchant objective, said at least one specified merchant

objective including said specified time period and said specified budget as constraints", as recited in independent claims 29, 49, and 56, and as similarly recited in independent claim 43. (emphasis added).

[0014] Hence, Applicants respectfully argue that the specified time period and the specified budget are constraints of the specified merchant objective, which is addressed by a marketing strategy provided by the present invention. That is, not all time periods or all budgets are considered by the present invention; nor are time periods or budgets supplied by customers. Instead, the merchant inputs a specified time period and a specified budget, as constraints, to a merchant objective to be addressed by a marketing strategy provided by the present invention.

[0015] Furthermore, Applicants respectfully argue that at least the claim elements of: "generating, by said computer, a plurality of possible marketing strategies", "determining, by said computer, an optimal marketing strategy from said plurality of possible marketing strategies", and "wherein said determining, by said computer, of said optimal marketing strategy comprises determining an optimal policy for each state during said specified time period", as recited in independent claims 29, 49, and 56, and as similarly recited in independent claim 43, are each limited to marketing strategies that are constrained by a specified time period and a specified budget, i.e., "providing a marketing strategy to address at least one specified merchant objective, the objective corresponding to a specified time period and a specified budget ... inputting to a computer, by a merchant, said at least one specified merchant objective, said at least one specified merchant objective including said specified time period and said specified budget as constraints".

[0016] In contrast, Abe discloses a method for sequential decision making, e.g., sequential cost-sensitive decision making, for customer relations. Abe's method includes providing customer data, e.g., consumer data, client data, donor data, etc., comprising stimulus-response history data, and automatically generating actionable rules based on the customer data, where automatically generating actionable rules may include estimating a value function using reinforcement learning. Nowhere does Abe constrain his decision making by having a merchant input a specified time period and a specified budget, corresponding to a marketing objective that is addressed by a marketing strategy provided by his invention.

[0017] Instead, Abe discloses a method for sequential decision making, e.g., sequential cost-sensitive decision making, for customer relations that includes providing customer data, e.g., consumer data, client data, donor data, etc., comprising stimulus-response history data, and automatically generating actionable rules based on the customer data, where automatically generating actionable rules may include estimating a value function using reinforcement learning.

[0018] Nowhere does Abe disclose, teach or suggest at least the present invention's feature of "inputting to a computer, by a merchant, said at least one specified merchant objective, said at least one specified merchant objective including said specified time period and said specified budget as constraints", as recited in independent claims 29, 49, and 56, and as similarly recited in independent claim 43. (emphasis added).

[0019] Mittal does not cure the deficiencies of Abe above.

[0020] Mittal merely discloses that a merchant desires to complete an experiment, i.e., an online marketing research experiment, within a specified budget, within a defined time period and to obtain the results from one or more sets of target users/customers (Paragraph [0015]).

[0021] Nowhere does Mittal disclose, teach, or suggest providing a marketing strategy to address a merchant object based on a specified time period and a specified budget, as described independent claims 29, 43, 49, and 56. Instead, Mittal is merely collecting information about a product, a market, competition, and user perception (Paragraph [0002]) from an online marketing experiment having a specified time period and a specified budget.

[0022] For at least the reasons outlined above, Applicants respectfully submit that Mittal does not disclose, teach or suggest at least the present invention's features of: "providing a marketing strategy to address at least one specified merchant objective, the objective corresponding to a specified time period and a specified budget", as recited in independent claims 29, 43, 49, and 56 and "inputting to a computer, by a merchant, said at least one specified merchant objective, said at least one specified merchant objective including said specified time period and said specified budget as constraints", as recited in independent claims 29, 49, and 56, and as similarly recited in independent claim 43.

[0023] For at least the reasons outlined above with respect to the rejection of the claims over Abe and with respect to the rejection of the claims over Mittal, Applicants respectfully submit that Abe and Mittal, either individually or in combination, do not disclose, teach or suggest at least the present invention's features of: "providing a marketing strategy to address at least one specified merchant objective, the objective corresponding to a specified time period and a specified budget", as recited in independent claims 29, 43, 49, and 56 and "inputting to a computer, by a merchant, said at least one specified merchant objective, said at least one specified merchant objective including said specified time period and said specified budget as constraints", as recited in independent claims 29, 49, and 56, and as similarly recited in independent claim 43. Accordingly, Abe and Mittal, either individually or in combination, fail to render obvious the subject matter independent claims 29, 43, 49, and 56, and dependent claims 30-33, 36, 38, 39, 44, 45, 47, 50, and 51 under 35 U.S.C. §103(a). Withdrawal of the rejection of claims 29-33, 36, 38, 39, 43-45, 47, 49-51, and 56 as unpatentable under 35 U.S.C. §103(a) over Abe and Mittal is respectfully solicited.

#### **IV. Formal Matters and Conclusion**

Claims 29-33, 36, 38-39, 43-45, 47, 49-51, and 56 are pending in the application.

Applicants respectfully submit that the currently amended claims satisfy the statutory requirements of 35 U.S.C. §101 and 35 U.S.C. §112, second paragraph.

With respect to the rejection of the claims over the cited prior art, Applicants respectfully argue that the present claims are distinguishable over the prior art of record. In view of the foregoing, the Examiner is respectfully requested to reconsider and withdraw the rejections to the claims.

In view of the foregoing, Applicants submit that claims 29-33, 36, 38-39, 43-45, 47, 49-51, and 56, all the claims presently pending in the application, are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest time possible.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayments to Attorney's Deposit Account Number 09-0441.

Respectfully submitted,

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